

Amendments to the Claims

This listing of claims will replace all prior listings of claims in the application.

Listing of Claims

1.-3. (Canceled)

4. (Currently Amended) The cyclone separator according to Claim ~~4~~17, wherein the ~~liquid~~ discharge passageways are disposed at symmetrical positions when viewed from ~~the~~a direction along the axis of the cyclone portion.

5. (Currently Amended) The cyclone separator according to Claim 4, wherein the ~~liquid~~ discharge passageways are disposed with an equal distance apart from one another.

6. (Currently Amended) The cyclone separator according to Claim ~~3~~17, wherein the ~~liquid~~ discharge passageways permit the liquid to flow in a ~~tangent~~tangential direction of ~~the~~an inner wall of the orifice ring.

7. (Currently Amended) The cyclone separator according to Claim ~~3~~17, wherein the ~~liquid flow~~ discharge passageways are formed so as to be displaced in the ~~tangent~~tangential direction toward the inside of ~~the~~an inner wall of the orifice ring.

8. (Currently Amended) The cyclone separator according to Claim 7, wherein the ~~liquid flow~~ discharge passageways are displaced 0.5 to 1.5 mm inside in the ~~tangent~~tangential direction of the inner wall of the orifice ring.

9. (Currently Amended) The cyclone separator according to Claim 4, wherein the ~~liquid~~ discharge passageways are formed into a curved shape.

10. (Canceled)

11. (Currently Amended) The cyclone separator according to Claim ~~11~~17, wherein the ~~liquid~~ discharge ~~passageway~~ has passageways have a larger cross-sectional area at ~~the~~an inlet side than the cross-sectional area at ~~the~~an outlet side.

12. (Currently Amended) The cyclone separator according to Claim 7, wherein the ~~liquid~~ discharge ~~passageway~~ has passageways have a linear passageway surface parallel to the tangent of ~~the~~an inner wall of the orifice ring, and a convex passageway surface at ~~the~~a linear passage surface side.

13. (Currently Amended) The cyclone separator according to Claim ~~3~~17, wherein the orifice ring is exchangeable with another orifice ring having a different ~~liquid~~ discharge passageway.

14. (Currently Amended) The cyclone separator according to Claim ~~3~~17 comprising:

a liquid flow-in part having the liquid discharge passageway formed therein to upwardly open at ~~the~~an upper part ~~in the vertical direction of the cyclone portion, thereof~~

and a cover having containing the liquid flow-out passageway ~~to close~~ and closing the opening of the liquid flow-in part,

the orifice ring being supported between the liquid flow-in part and the cover ~~to be~~in an attachable and detachable manner.

15. (Currently Amended) The cyclone separator according to Claim ~~2~~18, wherein the external discharge part is not

disposed on a line ~~different from the extended line~~ the axial of the liquid introduction passageway.

16. (Currently Amended) The cyclone separator according to Claim 218, wherein the external discharge part is disposed on the ~~extended~~ axial line of the liquid introduction passageway.

17. (New) A cyclone separator for separating a fine substance from a liquid containing the fine substance, the cyclone separator comprising:

an introduction passageway for introducing the liquid containing the fine substance;

a liquid pressurizing chamber containing an orifice ring for receiving the liquid containing the fine substance from the introduction passageway and discharging the liquid containing the fine substance through discharge passageways provided in the orifice ring at plural sites thereof in an eddy flow, the orifice ring comprising an inner ring having an outlet liquid discharge passageway and an outer ring having an inlet liquid passageway, the area of the inlet liquid passageway being varied through relative sliding movement between the inner ring and the outer ring in a circumferential direction;

a cyclone body for receiving the liquid containing the fine substance in an eddy flow, separating the fine substance from the liquid containing the fine substance by transferring the fine substance to an outer circumferential side thereof by centrifugal force, discharging the liquid separated from the fine substance and precipitating the separated fine substance; and

a liquid flow-out passageway for receiving the separated liquid discharged from the cyclone body and discharging the separated liquid from the cyclone separator.

18. (New) A cyclone separator for separating a fine substance from a liquid containing the fine substance, the cyclone separator comprising:

an introduction passageway for introducing the liquid containing the fine substance;

a liquid pressurizing chamber containing a plurality of orifice rings for receiving the liquid containing the fine substance from the introduction passageway and discharging the liquid containing the fine substance through discharge passageways provided in each of the orifice rings at plural sites thereof in an eddy flow, each orifice ring comprising an inner ring having an outlet liquid discharge passageway and an outer ring having an inlet liquid passageway, the area of the inlet liquid passageway being varied through relative sliding movement between the inner ring and the outer ring in a circumferential direction;

a plurality of cyclone bodies, each cyclone body being associated with a respective orifice ring and receiving the liquid containing the fine substance in an eddy flow from the respective orifice ring, separating the fine substance from the liquid containing the fine substance by transferring the fine substance to an outer circumferential side thereof by centrifugal force, discharging the liquid separated from the fine substance and precipitating the separated fine substance; and

a liquid flow-out passageway for receiving the separated liquid discharged from the plural cyclone bodies and discharging the separated liquid from the cyclone separator.